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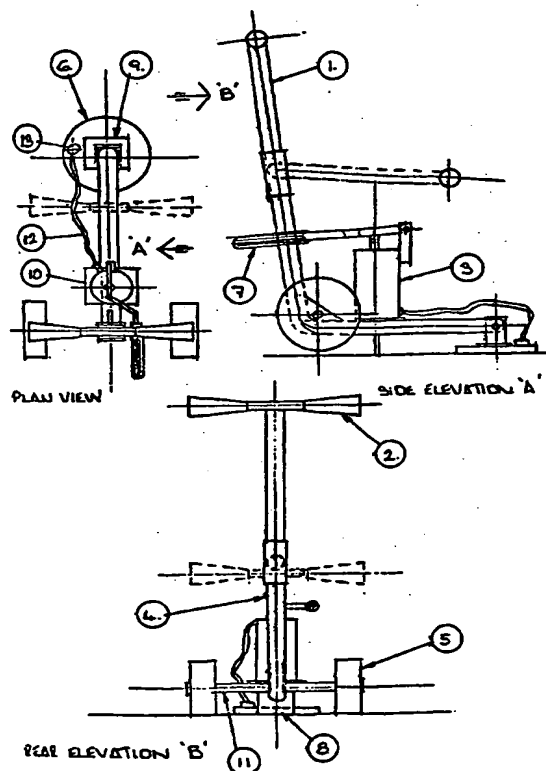
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(56) Documents Cited
 GB 2138749 A GB 2120610 A EP 0896113 A
 US 5184858 A

(58) Field of Search
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 ONLINE: EPODOC, WPI, JAPIO

(54) Abstract Title
 Manually operated suction lifting tool

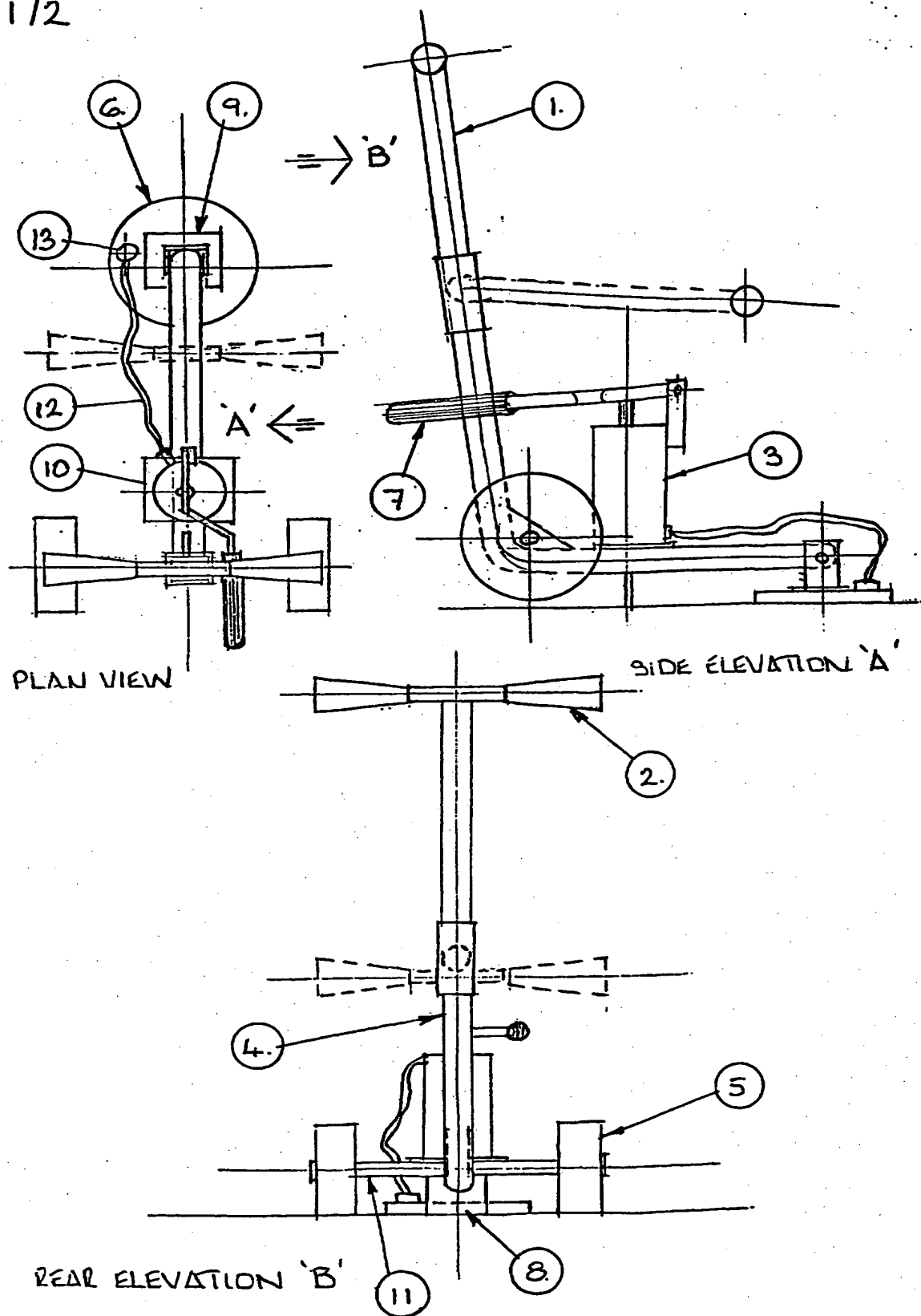
(57) The tool in the form of a trolley comprises a mild steel tubular frame 1,4, and runs on wheels 5. A suction cup 6, pivotally mounted on the frame, is placed over a paving slab or metal cover to be lifted and handle 7 of the vacuum pump 3 operated to extract air from the cup. The frame is then levered back to extract, transport and fit the paving slab. A pressure gauge 13 is fitted to the suction cup. The frame may be collapsed for storage.



The claims were filed later than the filing date but within the period prescribed by Rule 25(1) of the Patents Rules 1995.
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DESCRIPTION

The manually operated suction lifting tool consists of the following components as indicated on the drawings:-

1. Mild steel tube support main frame. Items 1 and 4.
2. Vacuum pump Item 3, mounted on plate Item 10, welded to main frame Item 4, with pump handle attached Item 7.
3. Wheel assembly Items 5 and 11.
4. Suction cup Item 6, with pivot attachment Item 9, bolted to it.
5. Air hose Item 12, attached to pump Item 3, and pressure gauge Item 13.

GENERAL

The tool is designed to pick up sheets of metal, timber or concrete slabs horizontally. Upon locating the suction cup over the product to be lifted the air is extracted by applying the handle to the suction pump in an upwards and downwards direction. To lift the product the main frame is levered back and downwards, thus lifting the product. It can then be wheeled away. The main frame is collapsible for storage.

A. 2

CLAIMS**Manual Suction Lifter**

1. A hand operated lever tool for extracting, fitting and transporting paving slabs and metal covers while under hand propelled vacuum suction.
2. A lifting tool as claimed in Claim 1 where mild steel metal tubing is bent to form a frame with wheels attached to either side. Mounted at one end an aluminium suction cup, at the other a lever 'T' handle. Located at the centre is a hand operated aluminium vacuum pump fitted with pressure gauge valve and hose attachment to suction cup.
3. A lifting tool as claimed in Claim 1 which locates on the top of paving slabs and metal covers.
4. A lifting tool as claimed in any preceding claim whereupon closing the gauge valve and pumping the vacuum pump the air is removed from the suction cup, thus enabling the product to be clamped securely for lifting. To release the product the gauge valve is opened.



INVESTOR IN PEOPLE

Application No: GB 0003817.4
 Claims searched: 1 - 4

Examiner: Richard Baines
 Date of search: 20 July 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Int Cl (Ed.7): E01C 19/52

Other: Online: keywords in EPODOC, WPI, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2,259,079 A (CONWAY)	
X	GB 2,138,749 A (TREACY) - page 2 lines 98 to 104	1 - 4
X	GB 2,120,610 A (CAMPLEJOHN) - fig. 1 and abstract	1 - 4
X	EP 0,896,113 A (SMITH) - fig. 1 and abstract	1

X Document indicating lack of novelty or inventive step
 Y Document indicating lack of inventive step if combined with one or more other documents of same category.

& Member of the same patent family

A Document indicating technological background and/or state of the art.
 P Document published on or after the declared priority date but before the filing date of this invention.
 E Patent document published on or after, but with priority date earlier than, the filing date of this application.